

REMARKS

After entry of this Amendment and Response, claims 1-4, 6-7, 10-15, 18-19, 21-24, 26-31, 33-34, 36-41, 43-53, 55, 57-68, 70-74, 76, and 78-80 will be pending.

Claims 35 is hereby cancelled, and its limitation incorporated into claim 79. Claims 1, 31, 38-39, 50, 58, 66, 70-71, and 79 are amended. Support for the claim amendments may be found, for example, in the Specification, page 8, lines 18-21 and page 12, lines 2-27, as well as in the originally filed claims. No new matter has been added.

Rejections Under 35 U.S.C. § 112

Claims 1-4, 6-7, 10-15, 18-19, 21-24, 26-31, 33-41, 43-53, 57-68, 70-71, and 78-80 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The rejection of claim 35 is moot in view of the cancellation of that claim.

Claims 1, 31, 50, and 58 have been amended to replace the phrase “mean particle size between about 10 microns and about 100 microns” with “mean diameter of about 10 microns to about 100 microns.” Support for this amendment may be found, for example, on page 8, lines 18-21 of the specification.

Claims 1, 38, 39, 50, 58, 66, 70, and 71 have been amended to replace the phrase “thickness selected from a range of 12 to 125 microns” with “thickness selected from a range of about 12 to about 125 microns.” Support for this amendment may be found, for example, on page 12, lines 26-27 of the application.

The Examiner rejected claim 78 for reciting a limitation not appearing in the specification, i.e., “wherein the filler comprises up to about 40% by weight of the particulate material,” further stating that the specification does support the amount of filler being up to 80% of the particulate material. Applicants respectfully note claim 78 recites 80%, whereas claim 79, as presented in a previous amendment, recited 40%. Accordingly, Applicants have not amended claim 78, but have amended claim 79 to replace the phrase “wherein the filler comprises up to about 40% by weight of the particulate material” by “wherein the filler comprises up to about 30% by weight of the composition.” Support for this amendment appears in, e.g., originally filed claim 35. Accordingly claim 35 is hereby cancelled.

Applicants submit that claims 1-4, 6-7, 10-15, 18-19, 21-24, 26-31, 33-34, 36-41, 43-53, 57-68, 70-71, and 78-80 satisfy the written description requirement.

Claims 72-74 and 76 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner has requested clarification about how a three dimensional printing composition can both comprise oil and be a dry, loose, free-flowing particulate material.

Oils may be used as a printing aid in particulate materials, as can be readily appreciated in the overlap in the listed examples of oils and printing aids given in the instant application. See page 8, lines 1-11. The behavior and properties of oils as printing aids is described in detail in U.S. Patent No. 5,902,441, incorporated by reference into the instant application. In particular, as described in the '441 patent with reference to lecithin (an oil), this material may be added to a powder to reduce dust formation without inhibiting three-dimensional printing:

Printing Aid

As indicated in Table 1, lecithin is used as a printing aid in the exemplary particulate mixture. Lecithin is a liquid which is only slightly soluble in water. By adding a small amount to the powder, the lecithin provides **a light adhesion between powder grains before printing, thereby reducing dust formation**. After printing, the lecithin continues to adhere insoluble grains together for a short time until it dissolves. This effect tends to reduce distortion in printed layers in the brief time that is required for the adhesive to dissolve and redistribute in the powder. Hydrophillic (sic) grades of lecithin are preferred. A wide variety of other liquid compounds work for the same purpose. Polypropylene glycol (PPG) with a molecular weight of about 2000 and citronellol are two examples.

See '441 patent, column 9, lines 13-27, emphasis added. Thus, oil may be included in a particulate mixture, and the particulate mixture remains suitable for three-dimensional printing, i.e., it is essentially dry, loose, and free-flowing.

Applicants submit that claims 72-74 and 76 are definite.

CONCLUSION

In light of the foregoing, Applicants respectfully submit that all claims are now in condition for allowance.


If the Examiner believes that a telephone conversation with Applicants' attorney would expedite allowance of this application, the Examiner is cordially invited to call the undersigned attorney at (617) 570-1806.

Applicants believe that no fees are required for entry of this Amendment and Response. However, if any fee is due, please charge any such fee occasioned by this paper to our Deposit Account No. 07-1700.

Respectfully submitted,

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